Balloon-Powered Car

Kit contains:

- 1 Cardboard rectangle
- 1 Balloon
- 4 Cardboard wheels
- 2 Wooden skewers (axles)
- Straw pieces: 2 straight, 1 bendy
- Mini rubber bands

You will need: your own tape.

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INSTRUCTIONS

Step 1. Tape two parallel straws to the bottom of your car. These will hold your axles.

Step 2. Thread a piece of skewer (axle) through each of the two straws. Slide a wheel onto each end of the skewers.

Step 3. Rubber band a balloon to the bendy straw. Tape the straw to the top of your car.

To start your car: Inflate the balloon by blowing into the straw. Aim your vehicle and let go.

PHYSICS CONNECTION

Have you ever blown up a balloon and then let it go, without tying it shut? The air rapidly escapes from the balloon, making it zip all over the room! This is because when you blow up a balloon, you increase the **air pressure** inside the balloon. This air pressure stretches out the rubber balloon material, just like stretching a rubber band. Both the air pressure and the stretched rubber store **potential energy**, or energy that is "waiting" to do something.

When you let the balloon go, the rubber contracts, and air is rapidly squeezed out the opening of the balloon. The potential energy inside the balloon is converted to **kinetic energy**, or energy of motion, of the fast-moving air through the opening. Because the air is pushed out rapidly *backwards*, there is a **reaction force** that pushes the balloon *forward*. This principle comes from **Newton's third law of motion**, which states "for every action, there is an equal and opposite reaction."